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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,881	10/09/2003	Atsushi Miyamoto	450101-04789	9585

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EXAMINER	
MARC, MCDIEUNEL	

ART UNIT	PAPER NUMBER
3661	

DATE MAILED: 07/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/681,881	Applicant(s) MIYAMOTO ET AL.
	Examiner McDieunel Marc	Art Unit 3661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 March 2004*.

2a)☒ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *all* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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DETAILED ACTION

1. Claims 1-37 are presented for examination.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-37 are rejected under 35 U.S.C. 102(b) as being anticipated by **Takenaka** (U.S. Pat. No. **5,936,367**).

As per claims 1, 19 and 37, Takenaka teaches a system and an associated method having gait generation system of legged mobile robot including a motion editing apparatus (see abstract, particularly gait are corrected which being taking as edited) for a legged mobile robot having a plurality of degrees of freedom in joints (see fig. 1, wherein each of the legs 2 is given six degrees of freedom), and a sensor for measuring an external environment (see fig. 1, element 60), comprising: a data inputting unit for inputting motion data (see col. 4, lines 53-56); a data reproducing unit for reproducing said motion data on an actual apparatus (see col. 4, lines 53-54, wherein the microcomputers being considered as motion reproducing unit, and bear in mind the same computers being used for executing motion editing program); a sensor information acquisition unit for acquiring the sensor information from said sensor during the time when said motion data is being reproduced (see all fig. 2); a motion evaluation unit for evaluating the motion based on the acquired sensor information (see fig. 2 and

col. 4, lines 63 – to – col. 5, lines -4); and a motion correction unit for correcting the motion data based on said results of evaluation (see abstract particularly correction of gait).

As per claims 2 and 20, **Takenaka** teaches a system and an associated method that further comprising a motion data outputting unit for embedding the sensor information (see fig. 2), acquired by said sensor information acquisition unit (see fig. 1, element 60), in the motion data satisfying a criterium of evaluation in said motion evaluation unit, as reference data, and for outputting the resulting motion data having the reference data embedded therein (see col. 4, lines 12-26 et seq.).

As per claims 3 and 21, **Takenaka** teaches a system and an associated method wherein said motion data outputting unit outputs the information on the angles of joints (see col. 4, lines 12-26), formed by the combination of angle command values for respective joints and measured values acquired on executing the motion, as the motion data having the reference data embedded therein (see figs. 5-12, particularly figure 12).

As per claims 4 and 22, **Takenaka** teaches a system and an associated method wherein said motion data outputting unit outputs the posture information composed of the combination of the target values for the respective sensors at the time of motion edition, measured values of sensor outputs at the time of motion execution and filtered values of said measured values of the sensor outputs, as the motion data having the reference data embedded therein (see all fig. 2).

As per claims 5 and 23, **Takenaka** teaches a system and an associated method wherein said motion data outputting unit outputs the ZMP trajectory information formed by the combination of the target ZMP trajectory for left and right foot soles at the time of editing and the ZMP trajectory as corrected by stabilization control at the time of execution of the motion, as the motion data having the reference data embedded therein (see col. 5, line 27 – to – col. 6, line – 13).

As per claims 6 and 24, **Takenaka** teaches a system and an associated method wherein said motion data outputting unit outputs the foot sole touchdown information and/or the contact information formed by the combination of a target value at the time of editing of an output of a floor reaction force sensor and a measured value thereof at the time of motion execution as motion data having the reference data embedded therein (see abstract and col. 1, line 56 – to – col. 2, line -11).

As per claims 7 and 25, **Takenaka** teaches a system and an associated method wherein said motion evaluation unit chronologically evaluates follow up characteristics on executing the motion on the actual apparatus (see fig. 8-10 and 28-31).

As per claims 8 and 26, **Takenaka** teaches a system and an associated method wherein said motion evaluation unit chronologically acquires a torque value of an actuator and the number of revolutions on executing the motion on an actual robot body and compares the acquired data to a NT curve representing the actuator characteristics of to evaluate whether or not there is any movement which surpasses the limit torque of the actuator (see col. 4, lines 31-44).

As per claims 9 and 27, **Takenaka** teaches a system and an associated method wherein said motion evaluation unit calculates a difference between posture sensor values and the ZMP trajectory as scheduled at the time of the motion edition, and sensor values and the ZMP trajectory as acquired on executing the motion on an actual robot body to evaluate the posture (see col. 5, line 27 – to – col. 6, line – 13).

As per claims 10 and 28, **Takenaka** teaches a system and an associated method wherein said motion evaluation unit calculates a difference between the posture at the time of motion edition and measured values obtained on executing the motion on the actual robot body to evaluate the touchdown and/or contact (see col. 22, lines 55-63, wherein configure to take different posture being taken as calculating difference between posture).

As per claims 11 and 29, **Takenaka** teaches a system and an associated method wherein said motion evaluation unit calculates the degree of improvement in measured values as to the motion corrected by last and previous evaluation events to evaluate the degree of achievement of correction (see abstract as noted above).

As per claims 12 and 30, **Takenaka** teaches a system and an associated method wherein said motion evaluation unit calculates the effect of an impact due to contact with an outside object on an actuator torque, ZMP trajectory or on the acceleration to evaluate the impact due to contact with the outside object (see col. 5, line 27 – to – col. 6, line – 13).

As per claims 13 and 31, **Takenaka** teaches a system and an associated method wherein said motion correction unit corrects a command angle value to the actuator and/or corrects control parameters of the actuator based on the result of evaluation of response properties of the actuator (see abstract as noted above).

As per claims 14 and 32, **Takenaka** teaches a system and an associated method wherein said motion correction unit changes the contents of the posture stabilization processing block based on the result of evaluation of the actuator torque.

As per claims 15 and 33, **Takenaka** teaches a system and an associated method wherein said motion correction unit changes the contents of the posture stabilization processing block based on the result of evaluation of the touchdown and/or contact.

As per claims 16 and 34, **Takenaka** teaches a system and an associated method wherein said motion correction unit changes the control of said posture stabilization processing block, as the contact with the outside object is taken into account, based on the result of evaluation of the impact due to contact with the outside object (see col. 22,lines 18-40).

As per claims 17 and 35, **Takenaka** teaches a system and an associated method wherein said motion reproducing unit takes out only an optional range of motion data to

reproduce the range thus taken out on the actual apparatus (see col. 6, lines 15-47, wherein the walking itself contain motion reproducing executing by the computerized system).

As per claims 18 and 36, **Takenaka** teaches a system and an associated method wherein said data reproducing unit sets a start time point in motion data (see abstract note that the walking steps contains start and stop motion/data reproducing), calculates the dynamic posture at said start time point, generates a transient motion with the dynamic posture at said start time point as a terminal point, and reproduces the motion on said actual apparatus using said transient motion; and wherein said data reproducing unit also sets a stop time point in said motion data (see abstract as noted above), calculates the dynamic posture at said stop time point, generates a transient motion with said stop posture as a start point and halts the movement of said actual apparatus using said transient motion (see abstract as noted above).

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to McDieunel Marc whose telephone number is (571) 272-6964. The examiner can normally be reached on 6:30-5:00 Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on (571) 272-6956. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M. Marc

McDieunel Marc

Sunday, June 26, 2005

MM/